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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/243,107	02/02/1999	JUDITH E. SCHWABE	08993/009001	2012

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EXAMINER
HO, THE T

ART UNIT	PAPER NUMBER
2151	

DATE MAILED: 09/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _02 February 1999_ .

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-30_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-30_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)   4)☐ Interview Summary (PTO-413) Paper No(s). _____ .

2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)   5)☐ Notice of Informal Patent Application (PTO-152)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _2,6,7,8_ .   6)☐ Other:

DETAILED ACTION

1. This action is in response to the application filed 2/2/1999.

2. Claims 1-30 have been examined and are pending in the application.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is no antecedent basic in claim 17 for "the virtual machine".

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-12 and 27 are rejected under 35 U.S.C. 102(e) as being unpatentable by Yellin U.S Patent No. 5,761,513.

As to claim 1, Yellin discloses managing exceptions throwable during execution of methods in one or more classes by a machine (line 66 column 1 to line 28 column 2), each method (each method, line 13 column 3) including an exception handler array defining exception handlers associated with the method (the code for the exception handlers, line 14-15 column 3), combining the exception handler arrays for two or more methods into a single exception handler table (one table of exception handlers for all the methods in a class, lines 16-18 column 3).

As to claim 2, Yellin further teaches combining all exception handler arrays for all methods in a class in the single exception handler table (one table of exception handlers for all the methods in a class, lines 16-18 column 3).

As to claim 3, Yellin further teaches combining all exception handler arrays for all methods in all classes in the single exception handler table (lines 19-40 column 3).

As to claim 4, Yellin further teaches combining all exception handler arrays for all methods in a Java package (the methods in a Java class file, line 20 column 3 and Fig. 4) in the single exception handler table (one table of exception handlers for all the methods in a class, lines 16-18 column 3).

As to claim 5, Yellin further teaches a method is included in a class file (the methods in a Java class file, line 20 column 3 and Fig. 4); combining the exception handler arrays for all methods in a class file in the single exception handler table (one table of exception handlers for all the methods in a class, lines 16-18 column 3).

As to claim 6, Yellin further teaches searching the exception handler table (found in a tree search, lines 42-44 column 3) when an exception is thrown (an exception is

thrown, line 41 column 3) while executing one of the methods (while executing the

protected code block, line 65 column 3) including locating a first matching exception in

the single exception handler table (the enclosing exception handlers that is applicable to

the thrown exception, lines 42-44 column 3).

As to claim 7, Yellin further teaches retrieving in order exception handler entries

(first exception handler found, line 42 column 3) from the exception handler table and

checking the type and range of each exception handler (class rank is determined by

position, lines 49-50 column 3) for the first matching exception handler.

As to claim 8, Yellin further teaches stopping searching if a current exception

handler does not match and is the last handler for the top most level of protected code

in an associated method (lines 19-47 column 7).

As to claim 9, Yellin further teaches the class files are Java class files (Java class

file, line 20 column 3).

As to claim 10, Yellin further teaches the methods in one or more classes are

grouped in a package (Java class file, line 20 column 3) where the package includes a

package data structure including first and second portions (Fig. 2), the process including

storing the exception handler table in the first portion (ThreadDeath to

NoSuchMethodError, Fig. 2) of the package and all methods in the second portion

(thrownable, error and exception, Fig. 122) of the package.

As to claim 11, Yellin further teaches concatenating the exception handler arrays

(hierarchy shown in Figs. 2-3) including loading each exception handler array into the

first portion (ThreadDeath to NoSuchMethodError, Fig. 2) of the package data structure

in accordance with a predefined ordering (class rank, line 49 column 3).

As to claim 12, Yellin further teaches the predefined ordering is determined

based on the ordering of methods (class rank, line 49 column 3).

As to the system of claim 27, note the discussions of claims 1 and 2 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 13-16, 25-26 and 29-30 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Yellin in view of Levy U.S Patent No. 6,092,147.

As to claim 13, Yellin further discloses the machine is a virtual machine (lines 11-

57 column 3). However, Yellin does not teach a resource-constrained device. Levy

teaches implementing a virtual machine on a resource-constrained device (Fig. 1). It

would have been obvious to apply the teachings of Levy to the system of Yellin because

this provides a reduction in the overall memory size and an increase in the overall

processing speed of the virtual machine as disclosed by Levy (lines 33-55 column 2).

As to claim 14, Levy further teaches the resource constrained device is a smart

card (smart card, line 7 column 3).

As to claim 15, note the discussion of claim 10.

As to claim 16, note the discussions of claims 2 and 10.

As to the method of claim 25, note the discussions of claims 1 and 10-12 above.

As to the process of claim 26, note the discussions of claims 1, 6 and 13 above.

As to the system of claim 29, note the discussions of claims 1 and 10-12 above.

As to the system of claim 30, note the discussions of claims 1, 5-6 and 13 above.

6. Claims 17-19 and 28 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Yellin in view of Bak U.S Patent No. 6,009,517.

As to claim 17, note the discussions of claims 1 and 6 above. However, Yellin as

modified does not discloses a return pointer. Bak discloses a stack with frames wherein

each frame includes a return pointer (line 52 column 2 to line 41 column 3). It would

have been obvious to apply the teachings of Bak to the system of Yellin as modified

because this allows exceptionŝ propagate through the execution stack for handling by

the appropriate exception handler, even when the functions were written in different

languages and the format of the exceptions are different as disclosed by Bak (lines 52

column 2 to line 7 column 3).

As to claim 18, Bak further discloses the pointer is a direct pointer to the

exception handler information (lines 55-66 column 2).

As to claim 19, note the discussion of claim 9 above.

As to the system of claim 28, note the discussion of claim 17 above.

7. Claims 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Yellin in view of Levy, and further in view of Bak.

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As to claim 20, note the discussion of claim 13 above.

As to claim 21, note the discussions of claims 2 and 13 above.

As to claim 22, note the discussion of claim 14 above.

As to claim 23, Yellin as modified further discloses registering the package in a registry service at installation (line 11 column 3 to line 9 column 4), the registry service maintaining a pointer indicating a location of the combined exception handler table (lines 41-57 column 3), and a range defining a range of addresses at which methods are located (lines 9-18 column 3).

As to claim 24, Yellin as modified further discloses locating a package associated with a currently executing method including comparing an address at which an exception was thrown against the range for each package registered in the registry service (line 58 column 3 to line 9 column 4), searching the combined exception handler table associated with a located package (lines 41-57 column 3).

Conclusion

Please refer to the references listed on the attached PTO-892, which are not relied upon in the claim rejections detailed above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to The T. Ho whose telephone number is 703-306-5540. A voice mail service is also available for this number. The examiner can normally be reached on Monday – Thursday, 8:30 am – 6:00 pm, and every other Friday from 8:30 am – 5:00 pm.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is 703-305-

3900.

Any response to this action should be mailed to:

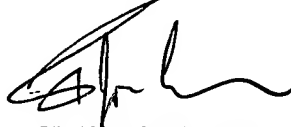Commissioner of Patents and Trademarks

Washington, D.C 20231

Or fax to:

- AFTER-FINAL faxes must be signed and sent to (703) 746 – 7238

- OFFICAL faxes must be signed and sent to (703) 746 – 7239

- NON OFFICAL faxes should not be signed, please send to (703) 746 – 7240

t.h
September 24, 2002

ST. JOHN COURTENAY III
PRIMARY EXAMINER

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson. MUST be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings MUST be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities. unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.

06/01/01